APPENDIX B

DEPARTMENTAL CONSIDERATIONS TO ESTABLISH THE CENTRAL CITIES, RURAL AREAS, AND OTHER UNDERSERVED AREAS GOAL

A. Introduction

1. Establishment of Goal

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA) requires the Secretary to establish an annual goal for the purchase of mortgages on housing located in central cities, rural areas, and other underserved areas (the "Geographically Targeted Goal").

In establishing this annual housing goal, Section 1334 of FHEFSSA requires the Secretary to consider:

1. Urban and rural housing needs and the housing needs of underserved areas;

2. Economic, housing, and demographic conditions;

3. The performance and effort of the enterprises toward achieving the Geographically Targeted Goal in previous years;

4. The size of the conventional mortgage market for central cities, rural areas, and other underserved areas relative to the size of the overall conventional mortgage market;

5. The ability of the enterprises to lead the industry in making mortgage credit available throughout the United States, including central cities, rural areas, and other underserved areas; and

6. The need to maintain the sound financial condition of the enterprises.

*Organization of Appendix***.** The remainder of Section A defines the Geographically Targeted Goal for both metropolitan areas and nonmetropolitan areas. Sections B and C address the first two factors listed above, focusing on findings from the literature on access to mortgage credit in metropolitan areas (Section B) and in nonmetropolitan areas (Section C). Separate discussions are provided for metropolitan and nonmetropolitan (rural) areas because of differences in the underlying markets and the data available to measure them. Section D discusses the past performance of the GSEs on the Geographically Targeted Goal (the third factor) and Sections E-G report the Secretary's findings for the remaining factors. Section H summarizes the Secretary's rationale for setting the level for the Geographically Targeted Goal.

2. HUD's Geographically Targeted Goal

HUD's proposed definition of the geographic areas targeted by this goal is basically the same as that used during 1996-99. It is divided into a metropolitan component and a nonmetropolitan component.

*Metropolitan Areas***.** This proposed rule provides that within metropolitan areas, mortgage purchases will count toward the goal when those mortgages finance properties that are located in census tracts where (1) median income of families in the tract does not exceed 90 percent of area (MSA) median income or (2) minorities comprise 30 percent or more of the residents and median income of families in the tract does not exceed 120 percent of area median income.

The definition includes 20,326 of the 43,232 census tracts (47 percent) in metropolitan areas, which include 44 percent of the metropolitan population.[1] The tracts included in this definition suffer from poor mortgage access and distressed socioeconomic conditions. The average mortgage denial rate in these tracts is 23.4 percent, almost twice the denial rate in excluded tracts. The tracts include 73 percent of the number of poor persons in metropolitan areas.

This definition is based on studies of mortgage lending and mortgage credit flows conducted by academic researchers, community groups, the GSEs, HUD and other government agencies. While more research must be done before mortgage access for different types of people and neighborhoods is fully understood, one finding from the existing research literature stands out--high-minority and low-income neighborhoods continue to have higher mortgage denial rates and lower mortgage origination rates than other neighborhoods. A neighborhood's minority composition and its level of income are highly correlated with measuring access to mortgage credit.

*Nonmetropolitan Areas***.** This proposed rule provides that in nonmetropolitan areas mortgage purchases that finance properties that are located in counties will count toward the Geographically Targeted Goal where (1) median income of families in the county does not exceed 95 percent of the greater of (a) state nonmetropolitan median income and (b) nationwide nonmetropolitan median income or (2) minorities comprise 30 percent or more of the residents and median income of families in the county does not exceed 120 percent of state nonmetropolitan median income.

Two important factors influenced HUD's definition of nonmetropolitan underserved areas -- lack of available data for measuring mortgage availability in rural areas and lenders' difficulty in

[1] Tracts are excluded from the analysis if median income is suppressed or there are no owner-occupied 1-4 unit properties. There are 2,033 such tracts. When reporting denial, origination, and application rates, tracts are excluded from the analysis if there are no purchase or refinance applications. Tracts are also excluded from the analysis if: (1) group quarters constitute more than 50 percent of housing units or (2) there are less than 15 home purchase applications in the tract and the tract denial rates equal 0 or 100 percent. Excluded tracts account for a small percentage of mortgage applications (1.4 percent). These tracts are not excluded from HUD's underserved areas if they meet the income and minority thresholds. Rather, the tracts are excluded to remove the effects of outliers from the analysis.

operating mortgage programs at the census tract level in rural areas. Because of these factors, this proposed rule uses a more inclusive, county-based definition of underservedness in rural areas. HUD's definition includes 1,511 of the 2,305 counties (66 percent) in nonmetropolitan areas and accounts for 54 percent of the nonmetropolitan population and 67 percent of the nonmetropolitan poverty population.

*Goal Levels***.** The proposed Geographically Targeted Goal is 29 percent of eligible units financed in calendar year 2000 and 31 percent of eligible units financed in calendar year 2001 and thereafter. HUD estimates that the mortgage market in areas included in the Geographically Targeted Goal accounts for 29-32 percent of the total number of newly-mortgaged dwelling units. HUD's analysis indicates that 28.8 percent of Fannie Mae's 1997 purchases and 27.0 percent of 1998 purchases financed dwelling units located in these areas. The corresponding performance for Freddie Mac was 26.3 percent in 1997 and 26.1 percent in 1998.

B. Consideration of Factors 1 and 2 in Metropolitan Areas: The Housing Needs of Underserved Urban Areas and Housing, Economic, and Demographic Conditions in Underserved Urban Areas

This section discusses differential access to mortgage funding in urban areas and summarizes available evidence on identifying those neighborhoods that have historically experienced problems gaining access to mortgage funding. Section B.1 provides an overview of the problem of unequal access to mortgage funding in the nation's housing finance system, focusing on discrimination and other housing problems faced by minority families and the communities where they live. Section B.2 examines mortgage access at the neighborhood level and discusses in some detail the rationale for the Geographically Targeted Goal in metropolitan areas. The most thorough studies available provide strong evidence that in metropolitan areas low income and minority composition identify neighborhoods that are underserved by the mortgage market.

Three main points are made in this section:

- There is evidence of racial disparities in both the housing and mortgage markets. Partly as a result of this, the homeownership rate for minorities is substantially below that for whites.

- The existence of substantial neighborhood disparities in mortgage credit is well documented for metropolitan areas. Research has demonstrated that census tracts with lower incomes and higher shares of minority population consistently have poorer access to mortgage credit, with higher mortgage denial rates and lower origination rates for mortgages. Thus, the income and minority composition of an area is a good measure of whether that area is being underserved by the mortgage market.

- Research supports a targeted definition. Studies conclude that characteristics of the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates. Once these characteristics are accounted for, other influences, such

as location in an OMB-designated central city, play only a minor role in explaining disparities in mortgage lending.[2]

1. Discrimination in the Mortgage and Housing Markets -- An Overview

The nation's housing and mortgage finance markets are highly efficient systems where most homebuyers can put down relatively small amounts of cash and obtain long-term funding at relatively small spreads above the lender's borrowing costs. Unfortunately, this highly efficient financing system does not work everywhere or for everyone. Studies have shown that access to credit often depends on improper evaluation of characteristics of the mortgage applicant and the neighborhood in which the applicant wishes to buy. In addition, though racial discrimination has become less blatant in the home purchase market, studies have shown that it is still widespread in more subtle forms. Partly as a result of these factors, the homeownership rate for minorities is substantially below that of whites.

Appendix A provided an overview of the homeownership gaps and lending disparities faced by minorities. A quick look at mortgage denial rates reported by the 1997 HMDA data reveals that minority denial rates were higher than those for white loan applicants. For lower-income borrowers, the conventional denial rate for African Americans was 1.7 times the denial rate for white borrowers, while for higher-income borrowers, the denial rate for African Americans was 2.5 times the rate for white borrowers. Similarly, the FHA denial rate for lower-income African Americans was 1.8 times the denial rates for lower-income white borrowers and twice as high for higher-income African Americans as for whites with similar incomes.

Several analytical studies, some of which are reviewed later in this section, show that these differentials in denial rates are not fully accounted for by differences in credit risk. Perhaps the most publicized example is a study by the Federal Reserve Bank of Boston, described in more detail below, which found that differential denial rates were most prevalent among marginal applicants.[3] Highly qualified borrowers of all races seemed to be treated equally, but in cases where there was some flaw in the application, white applicants seemed to be given the benefit of the doubt more frequently than minority applicants.

In addition to discrimination in the lending market, substantial evidence exists of discrimination in the housing market. The 1991 Housing Discrimination Study sponsored by HUD found that minority home buyers encounter some form of discrimination about half the time when they visit a rental or sales agent to ask about advertised housing.[4] The incidence of

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[2] For the sake of brevity, in the remainder of this appendix, the term "central city" is used to mean "OMB-designated central city."

[3] Alicia H. Munnell, Lynn Browne, James McEneaney, and Geoffrey Tootell. 1996. "Mortgage Lending in Boston: Interpreting HMDA Data," *American Economic Review*, 86(1) March:25-54.

[4] Margery A. Turner, Raymond J. Struyk, and John Yinger. *Housing Discrimination Study: Synthesis*, Washington, D.C., U.S. Department of Housing and Urban Development: 1991.

discrimination was higher for African Americans than for Hispanics and for homebuyers than for renters. For renters, the incidence of discrimination was 46 percent for Hispanics and 53 percent for African Americans. The incidence among buyers was 56 percent for Hispanics and 59 percent for African Americans.

While discrimination is rarely overt, minorities are more often told the unit of interest is unavailable, shown fewer properties, offered less attractive terms, offered less financing assistance, or provided less information than similarly situated non-minority homeseekers. Some evidence indicates that properties in minority and racially-diverse neighborhoods are marketed differently from those in White neighborhoods. Houses for sale in non-White neighborhoods are rarely advertised in metropolitan newspapers, open houses are rarely held, and listing real estate agents are less often associated with a multiple listing service.[5]

Discrimination, while not the only cause, contributes to the pervasive level of segregation that persists between African Americans and Whites in our urban areas. Because minorities tend to live in segregated neighborhoods, their difficulty in obtaining mortgage credit has a concentrated effect on the viability of their neighborhoods. In addition, there is evidence that denial rates are higher in minority neighborhoods regardless of the race of the applicant. The next section explores the issue of credit availability in neighborhoods in more detail.

2. Evidence About Access to Credit in Urban Neighborhoods

The viability of neighborhoods -- whether urban, rural, or suburban -- depends on the access of their residents to mortgage capital to purchase and improve their homes. While neighborhood problems are caused by a wide range of factors, including substantial inequalities in the distribution of the nation's income and wealth, there is increasing agreement that imperfections in the nation's housing and mortgage markets are hastening the decline of distressed neighborhoods. Disparate denial of credit based on geographic criteria can lead to disinvestment and neighborhood decline. Discrimination and other factors, such as inflexible and restrictive underwriting guidelines, limit access to mortgage credit and leave potential borrowers in certain areas underserved.

Data on mortgage credit flows are far from perfect, and issues regarding the identification of areas with inadequate access to credit are both complex and controversial. For this reason, it is essential to define "underserved areas" as accurately as possible from existing data. To provide the reasoning behind the Department's definition of underserved areas, this section first uses 1997 HMDA data to examine geographic variation in mortgage denial rates, and then it reviews three sets of studies that support HUD's definition. These include (1) studies examining racial discrimination against individual mortgage applicants, (2) studies that test whether mortgage redlining exists at the neighborhood level, and (3) studies that support HUD's targeted approach to measuring areas that are underserved by the mortgage market. In combination, these studies

[5] Margery A. Turner, "Discrimination in Urban Housing Markets: Lessons from Fair Housing Audits," *Housing Policy Debate*, Vol. 3, Issue 2, 1992, pp. 185-215.

provide strong support for the definition of underseved areas chosen by HUD. The review of the economics literature draws heavily from Appendix B of the 1995 GSE Rule; readers are referred there for a more detailed treatment of issues discussed below.

a. HMDA Data on Mortgage Originations and Denial Rates

Home Mortgage Disclosure Act (HMDA) data provide information on the disposition of mortgage loan applications (originated, approved but not accepted by the borrower, denied, withdrawn, or not completed) in metropolitan areas. HMDA data include the census tract location of the property being financed and the race and income of the individual loan applicant. Therefore, it is a rich data base for analyzing mortgage activity in urban neighborhoods. HUD's analysis using HMDA data for 1997 shows that high-minority and low-income census tracts have both relatively high loan application denial rates and relatively low loan origination rates.

Table B.1 presents mortgage denial and origination rates by the minority composition and median income of census tracts for metropolitan areas. Two patterns are clear:

- Census tracts with higher percentages of minority residents have higher mortgage denial rates and lower mortgage origination rates than all-white or substantially-white tracts. For example, the denial rate for census tracts that are over 90 percent minority (28.8 percent) was more than twice that for census tracts with less than 10 percent minority (12.4 percent).

- Census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. For example, mortgage denial rates declined from 26.8 to 8.4 percent as tract income increased from less than 60 percent of area median to over 150 percent of area median.[6] Similar patterns arose in HUD's analysis of 1993 and 1994 HMDA data (see Appendix B of the 1995 GSE Rule).

INSERT TABLE B.1 and TABLE B.2 HERE

Table B.2 illustrates the interaction between percent minority and tract income by aggregating the data in Table B.1 into six minority and income combinations. The low-minority (less than 30 percent minority), high-income (over 120 percent of area median) group has a denial rate of 9.1 percent and an origination rate of 9.7 loans per 100 owner occupants. The high-minority (over 50 percent), low-income (under 90 percent of area median) group has a denial rate of 27.7 percent and an origination rate of only 5.5 loans per 100 owner occupants. The other groupings fall between these two extremes.

The advantages of HUD's underserved area definition can be seen by examining the minority-income combinations highlighted in Table B.2. The sharp differences in denial rates and origination rates between the underserved and remaining served categories illustrate that HUD's

[6] The denial rates in Table B.1 are for home purchase mortgages. Denial rates are several percentage points lower for refinance loans than for purchase loans, but denial rates follow the same pattern for both types of loans: rising with minority concentration and falling with increasing income.

definition delineates areas that have significantly less success in receiving mortgage credit. Underserved areas have almost twice the average denial rate of served areas (23.4 percent versus 12.2 percent) and two-thirds the average origination rate per 100 owner occupants (6.6 versus 9.1). HUD's definition does not include high-income (over 120 percent of area median) census tracts even if they meet the minority threshold. The mortgage denial rate (14.9) for high-income tracts with a minority share of population over 30 percent is much less than the denial rate (23.4) in underserved areas as defined by HUD, and only slightly above the average (12.2 percent) for all served areas.

b. Federal Reserve Bank Studies

The analysis of denial rates in the above section suggests that HUD's definition is a good proxy for identifying areas experiencing credit problems. However, an important question is the degree to which variations in denial rates reflect lender bias against certain kinds of neighborhoods and borrowers versus the degree to which they reflect the credit quality of the potential borrower (as indicated by the applicant's available assets, credit rating, employment history, etc.). Some studies of credit disparities have attempted to control for credit risk factors that might influence a lender's decision to approve a loan. Without fully accounting for the creditworthiness of the borrower, racial differences in denial rates cannot be attributed to lender bias.

The best example of accounting for credit risk is the study by researchers at the Federal Reserve Bank of Boston, which analyzed mortgage denial rates.[7] To control for credit risk, the Boston Fed researchers included 38 borrower and loan variables indicated by lenders to be critical to loan decisions. For example, the Boston Fed study included a measure of the borrower's credit history, which is a variable not included in other studies. The Boston Fed study found that minorities' higher denial rates could not be explained fully by income and credit risk factors. African Americans and Hispanics were about 60 percent more likely to be denied credit than Whites, even after controlling for credit risk characteristics such as credit history, employment stability, liquid assets, self-employment, age, and family status and composition. Although almost all highly-qualified applicants of all races were approved, differential treatment was observed among borrowers with more marginal qualifications.[8]

[7] Alicia H. Munnell, Lynn E. Browne, James McEneaney, and Geoffrey M. B. Tootell, "Mortgage Lending in Boston: Interpreting HMDA Data," *American Economic Review*, March 1996.

[8] A HUD study also found mortgage denial rates for minorities to be higher in ten metropolitan areas, even after controlling for credit risk. In addition, the higher denial rates observed in minority neighborhoods were not purely a reflection of the higher denial rates experienced by minorities. Whites experienced higher denial rates in some minority neighborhoods than in some predominantly white neighborhoods. Ann B. Schnare and Stuart A. Gabriel, "The Role of FHA in the Provision of Credit to Minorities," ICF Incorporated, prepared for the U.S. Department of Housing and Urban Development, April 25, 1994.

A subsequent reassessment and refinement of the data used by the Federal Reserve Bank of Boston confirmed the findings of that study.[9] William C. Hunter of the Federal Reserve Bank of Chicago confirmed that race was a factor in denial rates of marginal applicants. While denial rates were comparable for borrowers of all races with "good" credit ratings, among those with "bad" credit ratings or high debt ratios, minorities were significantly more likely to be denied than similarly-situated whites. The study concluded that the racial differences in denial rates were consistent with a cultural gap between white loan officers and minority applicants, and conversely, a cultural affinity with white applicants.

The two Fed studies concluded that the effect of borrower race on mortgage rejections persists even after controlling for legitimate determinants of lenders' credit decisions. Thus, they imply that variations in mortgage denial rates, such as given in Table B.2 are not determined entirely by borrower risk but reflect discrimination in the housing finance system. However, the independent race effect identified in these studies is still difficult to interpret. In addition to lender bias, access to credit can be limited by loan characteristics that reduce profitability[10] and by underwriting standards that have disparate effects on minority and lower-income borrowers and their neighborhoods.[11]

c. Controlling for Neighborhood Risk and Tests of the Redlining Hypothesis

In its deliberations leading up to FHEFSSA, Congress was concerned about geographic redlining--the refusal of lenders to make loans in certain neighborhoods regardless of the creditworthiness of individual applicants. During the 1980's and early 1990's, a number of studies using HMDA data (such as that reported in Tables B.1 and B.2) attempted to test for the existence of mortgage redlining. Consistent with the redlining hypothesis, these studies found lower volumes of loans going to low-income and high-minority neighborhoods.[12] However, such

[9] William C. Hunter, "The Cultural Affinity Hypothesis and Mortgage Lending Decisions," WP-95-8, Federal Reserve Bank of Chicago, 1995.

[10] Since upfront loan fees are frequently determined as a percentage of the loan amount, lenders are discouraged from making smaller loans in older neighborhoods, because such loans generate lower revenue and are less profitable to lenders.

[11] Traditional underwriting practices may have excluded some lower income families that are, in fact, creditworthy. Such families tend to pay cash, leaving them without a credit history. In addition, the usual front-end and back-end ratios applied to applicants' housing expenditures and other on-going costs may be too stringent for lower income households, who typically pay larger shares of their income for housing (including rent and utilities) than higher income households.

[12] These studies, which were conducted at the census tract level, typically involved regressing the number of mortgage originations (relative to the number of properties in the census tract) on characteristics of the census tract including its minority composition. A negative coefficient estimate for the minority composition variable was often interpreted as suggesting redlining. For a discussion of these models, see Eugene Perle, Kathryn Lynch, and Jeffrey Horner, "Model Specification and Local Mortgage Market Behavior," *Journal of Housing Research*, Volume 4, Issue 2, 1993, pp. 225-243.

analyses were criticized because they did not distinguish between demand, risk, and supply effects[13] -- that is, they didn't determine whether loan volume was low because families in high-minority and low-income areas were unable to afford home ownership and therefore were not applying for mortgage loans, *or* because borrowers in these areas were more likely to default on their mortgage obligations, *or* because lenders refused to make loans to creditworthy borrowers in these areas.[14,15]

Recent statistical studies have sought to test the redlining hypothesis by more completely controlling for differences in neighborhood risk and demand. The first two studies reviewed below are good examples of the more recent literature. In these studies, the explanatory power of neighborhood race is reduced to the extent that the effects of neighborhood risk and demand are accounted for; thus, they do not support claims of racially induced mortgage redlining. However, as explained below, these studies cannot reach definitive conclusions about redlining because segregation in our inner cities makes it difficult to distinguish the impacts of geographic redlining from the effects of individual discrimination.

Additional studies related to redlining and the credit problems facing low-income and minority neighborhoods are also summarized. Particularly important are studies that focus on the "thin" mortgage markets in these neighborhoods and the implications of lenders not having enough information about the collateral and other characteristics of these neighborhoods. The low numbers of house sales and mortgages originated in low-income and minority neighborhoods result in individual lenders perceiving these neighborhoods to be more risky. It is argued that lenders do not have enough historical information to project the expected default performance of loans in low-income and minority neighborhoods, which increases their uncertainty about investing in these areas.

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[13] For critiques of the early HMDA studies, see Andrew Holmes and Paul Horvitz, "Mortgage Redlining: Race, Risk, and Demand," *The Journal of Finance*, Volume 49, No. 1, March 1994, pp. 81-99; and Michael H. Schill and Susan M. Wachter, "A Tale of Two Cities: Racial and Ethnic Geographic Disparities in Home Mortgage Lending in Boston and Philadelphia," *Journal of Housing Research*, Volume 4, Issue 2, 1993, pp. 245-276.

[14] Like early HMDA studies, an analysis of deed transfer data in Boston found lower rates of mortgage activity in minority neighborhoods. The discrepancies held even after controlling for income, house values and other economic and non-racial factors that might explain differences in demand and housing market activity. The study concluded that "the housing market and the credit market together are functioning in a way that has hurt African American neighborhoods in the city of Boston." Katherine L. Bradbury, Karl E. Case, and Constance R. Dunham, "Geographic Patterns of Mortgage Lending in Boston, 1982-1987," *New England Economic Review*, September/October 1989, pp. 3-30.

[15] Using an analytical approach similar to that of Bradbury, Case, and Dunham, Anne Shlay found evidence of fewer mortgage loans originated in black census tracts in Chicago and Baltimore. See Anne Shlay, "Not in That Neighborhood: The Effects of Population and Housing on the Distribution of Mortgage Finance within the Chicago SMSA," *Social Science Research*, Volume 17, No. 2, 1988, pp. 137-163; and "Financing Community: Methods for Assessing Residential Credit Disparities, Market Barriers, and Institutional Reinvestment Performance in the Metropolis," *Journal of Urban Affairs*, Volume 11, No. 3, 1989, pp. 201-223.

*Holmes and Horvitz Study***.** First, Andrew Holmes and Paul Horvitz used 1988-1991 HMDA data to examine variations of conventional mortgage originations across census tracts in Houston. Their single-equation regression model included as explanatory variables the economic viability of the loan, characteristics of properties in and residents of the tract (e.g., house value, income, age distribution and education level), measures of demand (e.g., recent movers into the tract and change in owner-occupied units between 1980 and 1990), and measures of credit risk (defaults on government-insured loans and change in tract house values between 1980 and 1990). To test the existence of racial redlining, the model also included as explanatory variables the percentages of African American and Hispanic residents in the tract and the increase in the tract's minority percentage between 1980 and 1990. Most of the neighborhood risk and demand variables were significant determinants of the flow of conventional loans in Houston. The coefficients of the racial composition variables were insignificant, which led Holmes and Horvitz to conclude that allegations of redlining in the Houston market could not be supported.

Schill and Wachter Study. Michael Schill and Susan Wachter posit that the probability that a lender will accept a specific mortgage application depends on characteristics of the individual loan application[16] and characteristics of the neighborhood where the property collateralizing the loan is located. Schill and Wachter include neighborhood risk proxies that are likely to affect the future value of the properties,[17] and they include the percentage of the tract population comprised by African Americans and Hispanics in order to test for the existence of racial discrepancies in lending patterns across census tracts.

Testing their model for conventional mortgages in Philadelphia and Boston, Schill and Wachter found that the applicant race variables -- whether the applicant was African American or Hispanic -- showed significant negative effects on the probability that a loan would be accepted. Schill and Wachter stated that this finding does not provide evidence of individual race discrimination because applicant race is most likely serving as a proxy for credit risk variables omitted from their model (e.g., credit history, wealth and liquid assets). In an initial analysis that excluded the neighborhood risk variables from the model, the percentage of the census tract that was African American also showed a significant and negative coefficient, a result that is consistent with redlining. However, when the neighborhood risk proxies were included in the model along with the individual loan variables, the percentage of the census tract that was African American becomes insignificant. Thus, similar to Holmes and Horvitz, Schill and Wachter stated that "once the set of independent variables is expanded to include measures that act as proxies for neighborhood risk, the results do not reveal a pattern of redlining."[18]

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[16]Individual loan characteristics include loan size (economies of scale cause lenders to prefer large loans to small loans) and all individual borrower variables included in the HMDA data (the applicant's income, sex, and race).

[17] Their neighborhood risk proxies include median income and house value (inverse indicators of risk), percent of households receiving welfare, median age of houses, homeownership rate (an inverse indicator), vacancy rate, and the rent-to-value ratio (an inverse indicator). A high rent-to-value ratio suggests lower expectations of capital gains on properties in the neighborhood.

[18] Schill and Wachter, page 271. Munnell, *et al.* reached similar conclusions in their study of Boston. They found that the race of the individual mattered, but that once individual characteristics were controlled, racial composition

Other Redlining Studies. To highlight the methodological problems of single-equation studies of mortgage redlining, Fred Phillips-Patrick and Clifford Rossi develop a simultaneous equation model of the demand and supply of mortgages, which they estimate for the Washington, DC metropolitan area.[19] Phillips-Patrick and Rossi find that the supply of mortgages is negatively associated with the racial composition of the neighborhood, which leads them to conclude that the results of single-equation models (such as the one estimated by Holmes and Horvitz) are not reliable indicators of redlining or its absense. However, Phillips-Patrick and Rossi note that even their simultaneous equations model does not provide definitive evidence of redlining because important underwriting variables (such as credit history), which are omitted from their model, may be correlated with neighborhood race.

A few studies of neighborhood redlining have attempted to control for the credit history of the borrower, which is the main omitted variable in the redlining studies reviewed so far. Samuel Myers, Jr. and Tsze Chan, who study mortgage rejections in the state of New Jersey in 1990, develop a proxy for bad credit based on the reasons that lenders give in their HMDA reports for denying a loan.[20] They find that 70 percent of the gap in rejection rates cannot be explained by differences in Black and white borrower characteristics, loan characteristics, neighborhoods or bad credit. Myers and Chan conclude that the unexplained Black-white gap in rejection rates is a result of discrimination. With respect to the racial composition of the census tract, they find that Blacks are more likely to be denied loans in racially integrated or predominately-white neighborhoods than in predominately-Black neighborhoods. They conclude that middle-class Blacks seeking to move out of the inner city would face problems of discrimination in the suburbs.[21]

Geoffrey Tootell has authored two papers on neighborhood redlining based on the mortgage rejection data from the Boston Fed study.[22] Tootell's studies are important because they

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of the neighborhood was insignificant.

[19] Fred J. Phillips-Patrick and Clifford V. Rossi, "Statistical Evidence of Mortgage Redlining? A Cautionary Tale", *The Journal of Real Estate Research*, Volume 11, Number 1 (1996), pp.13-23.

[20] Samuel L. Myers, Jr. and Tsze Chan, "Racial Discrimination in Housing Markets: Accounting for Credit Risk", *Social Science Quarterly*, Volume 76, Number 3 (September 1995), pp. 543-561.

[21] For another study that uses HMDA data on reasons for denial to construct a proxy for bad credit, see Steven R. Holloway, "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio", *Annals of the Association of American Geographers*, 88(2), 1998, pp. 252-276. Holloway finds that mortgage denial rates are higher for black applicants (particularly those who are making large loan requests) in all-white neighborhoods than in minority neighborhoods, while the reverse is true for white applicants making small loan requests.

[22] See Geoffrey M. B. Tootell, "Redlining in Boston: Do Mortgage Lenders Discriminate Against Neighborhoods?", *Quarterly Journal of Economics*, 111, November, 1996, pp. 1049-1079; and "Discrimination, Redlining, and Private Mortgage Insurance", unpublished manuscript, October , 1995.

include a direct measure of borrower credit history, as well as the other underwriting, borrower, and neighborhood characteristics that are included in the Boston Fed data base; thus, his work does not have the problem of omitted variables, at least to the same extent as previous redlining studies.[23] Tootell finds that lenders in the Boston area do not appear to be redlining neighborhoods based on the racial composition of the census tract or the average income in the tract. Consistent with the Boston Fed and Schill and Wachter studies, Tootell finds that it is the race of the applicant that mostly affects the mortgage lending decision; the location of the applicant's property appears to be far less relevant. However, he does find that the decision to require private mortgage insurance depends on the racial composition of the neighborhood. Tootell suggests that, rather than redline themselves, mortgage lenders may rely on private mortgage insurers to screen applications from minority neighborhoods. Tootell also notes that this indirect form of redlining would increase the price paid by applicants from minority areas that are approved by private mortgage insurers.

In a 1999 paper, Stephen Ross and Geoffrey Tootell use the Boston Fed data base to take a closer at both lender redlining and the role of private mortgage insurance (PMI) in neighborhood lending.[24] They have two main findings. First, mortgage applications for properties in low-income neighborhoods are more likely to be denied if the applicant does not apply for PMI. Ross and Tootell conclude that their study provides the first direct evidence based on complete underwriting data that some mortgage applications may have been denied based on neighborhood characteristics that legally should not be considered in the underwriting process. Second, mortgage applicants are often forced to apply for PMI when the housing units are in low-income neighborhoods. Ross and Tootell conclude that lenders appear to be responding to CRA by favoring low-income tracts once PMI has been received, and this effect counteracts the high denial rates for applications without PMI in low-income tracts.

Studies of Information Externalities. A recent group of studies that focus on economies of scale in the collection of information about neighborhood characteristics has implications for the identification of underserved areas and understanding the problems of mortgage access in low-income and minority neighborhoods. William Lang and Leonard Nakamura argue that individual home sale transactions generate information which reduce lenders' uncertainty about property values, resulting in greater availability of mortgage financing.[25] Conversely, appraisals in neighborhoods where transactions occur infrequently will tend to be more imprecise, resulting in

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[23] Tootell notes that both omitted variables and the strong correlation between borrower race and neighborhood racial composition in segregated cities have made it difficult for previous studies to distinguish the impacts of geographic redlining from the effects of individual borrower discrimination.
He can unravel these effects because he includes a direct measure of credit history and because over half of minority applicants in the Boston Fed data base applied for mortgages in predominately white areas.

[24] Stephen L. Ross and Geoffrey M. B. Tootell, "Redlining, the Community Reinvestment Act, and Private Mortgage Insurance", unpublished manuscript, March, 1999.

[25] Lang, William W. and Leonard I. Nakamura, "A Model of Redlining," *Journal of Urban Economics*, Volume 33, 1993, pp. 223-234.

greater uncertainty to lenders regarding collateral quality, and more reluctance by them in approving mortgage loans in neighborhoods with thin markets. As a consequence, "prejudicial practices of the past may lead to continued differentials in lending behavior."

If low-income or minority tracts have experienced relatively few recent transactions, the resulting lack of information available to lenders will result in higher denial rates and more difficulty in obtaining mortgage financing, independently of the level of credit risk in these neighborhoods.

A number of empirical studies have found evidence consistent with the notion that mortgage credit is more difficult to obtain in areas with relatively few recent sales transactions. Some of these studies have also found that low transactions volume may contribute to disparities in the availability of mortgage credit by neighborhood income and minority composition.

Paul Calem found that, in low-minority tracts, higher mortgage loan approval rates were associated with recent sales transactions volume, consistent with the Lang and Nakamura hypothesis.[26] While this effect was not found in high-minority tracts, he concludes that "informational returns to scale" contribute to disparities in the availability of mortgage credit between low-minority and high-minority areas. Empirical research by David Ling and Susan Wachter finds that recent tract-level sales transaction volume does significantly contribute to mortgage loan acceptance rates in Dade County, Florida, also consistent with the Lang and Nakamura hypothesis.[27]

Robert Avery, Patricia Beeson, and Mark Sniderman find significant evidence of economies associated with the scale of operation of individual lenders in a neighborhood.[28] They conclude that "The inability to exploit these economies of scale is found to explain a substantial portion of the higher denial rates observed in low-income and minority neighborhoods, where the markets are generally thin." Low-income and minority neighborhoods often suffer from low transactions volume, and low transactions volume represents a barrier to the availability of mortgage credit by making mortgage lenders more reluctant to approve and originate mortgage loans in these areas.

d. Geographic Dimensions of Underserved Areas -- Targeted versus Broad Approaches

HUD's definition of underserved areas is a targeted neighborhood definition, rather than a broad definition that would encompass entire cities. It also focuses on these neighborhoods

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[26] Calem, Paul S. "Mortgage Credit Availability in Low- and Moderate-Income Minority Neighborhoods: Are Information Externalities Critical?" *Journal of Real Estate Finance and Economics*, Volume 13, 1996, pp. 71-89.

[27] Ling, David C. and Susan M. Wachter, "Information Externalities and Home Mortgage Underwriting," *Journal of Urban Economics*, Volume 44, 1998, pp. 317-332.

[28] Robert B. Avery, Patricia E. Beeson, and Mark S. Sniderman, "Neighborhood Information and Home Mortgage Lending," *Journal of Urban Economics*, Volume 45, 1999, pp. 287-310.

experiencing the most severe credit problems rather than neighborhoods experiencing only moderate difficulty obtaining credit. During the regulatory process leading to the 1995 Rule, some argued that underserved areas under this goal should be defined to include the entire central city. HUD concluded that such broad definitions were not a good proxy for mortgage credit problems; to use them would allow the GSEs to focus on wealthier parts of cities rather than on neighborhoods experiencing credit problems. This section reports findings from several analyses by HUD and academic researchers that support defining underserved areas in terms of the minority and/or income characteristics of census tracts, rather than in terms of a broad definition such as all areas of all central cities.

Socioeconomic Characteristics. The targeted nature of HUD's definition can be seen from the data presented in Table B.3, which show that families living in underserved areas experience much more economic and social distress than families living in served areas. For example, the poverty rate in underserved census tracts is 20.1 percent, or almost four times the poverty rate (5.8 percent) in served census tracts. The unemployment rate and the high-school drop out rate are also higher in underserved areas. In addition, there are nearly three times more female-headed households in underserved areas (11.5 percent) than in served areas (4.3 percent) The majority of units in served areas are owner-occupied while the majority of units in underserved areas are renter-occupied.

INSERT TABLE B.3 and FIGURE B.1 HERE

*Credit Characteristics***.** Tables B.1 and B.2 documented the relatively high denial rates and low mortgage origination rates in underserved areas as defined by HUD. This section extends that analysis by comparing underserved and served areas within central cities and suburbs. Figure B.1 shows that HUD's definition targets central city neighborhoods that are experiencing problems obtaining mortgage credit. The 23.2 percent denial rate in these neighborhoods in 1997 is twice the 12.6 percent denial rate in the remaining areas of central cities. A broad, inclusive definition of "central city" that includes all areas of all OMB-designated central cities would include these "remaining" portions of cities. Figure B.1 shows that these areas, which account for approximately 43 percent of the population in OMB-designated central cities, appear to be well served by the mortgage market. As a whole, they are not experiencing problems obtaining mortgage credit.[29]

HUD's definition also targets underserved census tracts in the suburbs as well as in central cities -- for example, the average denial rate in underserved suburban areas (23.7 percent) is more than twice that in the remaining served areas of the suburbs (12.0 percent). Low-income and high-minority suburban tracts appear to have credit problems similar to their central city counterparts. These suburban tracts, which account for 40 percent of the suburban population, are encompassed by the definition of other underserved areas.

[29] The Preamble to the 1995 Rule provides additional reasons why central city location should not be used as a proxy for underserved areas.

Another alternative definition proposed by some in 1995 would have relaxed HUD's definition by increasing the income threshold from 90 percent to 100 percent of area median income and by reducing the minority threshold from 30 percent to 20 percent of tract population. This definition would include all areas covered by HUD's definition as well as 5,367 additional census tracts where median income is between 90 and 100 percent of area median or minorities comprise 20-30 percent of tract population. As HUD argued in the 1995 GSE Rule, these tracts do not appear to be experiencing problems obtaining mortgage credit. Their 17.8 percent mortgage denial rate is not much above the average of 15.3 percent and significantly below the 23.4 percent denial rate in tracts covered by HUD's Geographically Targeted Goal.

As explained in the Preamble, HUD is asking for public comment on two options that would tighten the targeting of the underserved definition reducing the number of qualifying census tract. The first option would enhance the definition of the tract income ratio and reduce the ceiling of the qualifying tract income ratio from 90 percent to 80 percent of area median income. The definition of tract income ratio would be enhanced as follows: the definition would change from tract median income as a percent of MSA median income to tract median income as a percent of the greater of either the national metropolitan median income or the MSA median income. Applying the definition changes the current definition in two ways: (1) 994 tracts, with an average denial rate of 26.8, would be added, and (2) 2,500 tracts, with an average denial rate of 17.8 percent, would be dropped due to reducing the income threshold to 80 percent. Of the tracts that would be dropped, the denial rate is not much higher than the average denial rate for all metropolitan areas, which is 15.3 percent. This suggests that these areas are not experiencing severe problems in obtaining mortgage credit and should not be targeted.

The second option would change the definition of underserved areas to qualify census tracts with minority population of 50 percent, an increase from the current definition of 30 percent. An increase in the tract minority population would focus GSE purchases in high-minority neighborhoods that have been traditionally underserved by the mortgage market. One shortcoming of this option is that it would exclude 1,045 tracts with minority population between 30 and 50 percent which have high denial rates (20.2 percent).

*Shear, Berkovec, Dougherty, and Nothaft Study***.** William Shear, James Berkovec, Ann Dougherty, and Frank Nothaft conducted an analysis of mortgage flows and application acceptance rates in 32 metropolitan areas that supports a targeted definition of underserved areas.[30] They found: (a) low-income census tracts and tracts with high concentrations of African

[30] William Shear, James Berkovec, Ann Dougherty, and Frank Nothaft, "Unmet Housing Needs: The Role of Mortgage Markets," *Journal of Housing Economics*, Volume 4 , 1996, pp. 291-306. These researchers regressed the number of mortgage originations per 100 properties in the census tract on several independent variables that were intended to account for some of the demand and supply (i.e., credit risk) influences at the census tract level. The tract's minority composition and central city location were included to test if these characteristics were associated with underserved neighborhoods after controlling for the demand and supply variables. Examples of the demand and supply variables at the census tract level include: tract income relative to the area median income, the increase in house values between 1980 and 1990, the percentage of units boarded up, and the age distributions of households and housing units. See also Susan Wharton Gates, "Defining the Underserved," *Secondary Mortgage Markets*, 1994 Mortgage Market Review Issue, 1995, pp. 34-48.

American and Hispanic families had lower rates of mortgage applications, originations, and acceptance rates;[31] and (b) once census tract influences were accounted for, central city location had only a minimal effect on credit flows.

Shear, Berkovec, Dougherty, and Nothaft recognized that it is difficult to interpret their estimated minority effects -- the effects may indicate lender discrimination, supply and demand effects not included in their model but correlated with minority status, or some combination of these factors. They explain the implications of their results for measuring underserved areas as follows:

> While it is not at all clear how we might rigorously define, let alone measure, what it means to be underserved, it is clear that there are important housing-related problems associated with certain location characteristics, and it is possible that, in the second or third best world in which we live, mortgage markets might be useful in helping to solve some of these problems. We then might use these data to help single out important areas or at least eliminate some bad choices. ...The regression results indicate that income and minority status are better indicators of areas with special needs than central city location.[32]

*Avery, Beeson, and Sniderman Study***.** Robert Avery, Patricia Beeson, and Mark Sniderman of the Federal Reserve Bank of Cleveland presented a paper specifically addressing the issue of underserved areas in the context of the GSE legislation.[33] Their study examines variations in application rates and denial rates for all individuals and census tracts included in the 1990 and 1991 HMDA data base. They seek to isolate the differences that stem from the characteristics of the neighborhood itself rather than the characteristics of the individuals that apply for loans in the neighborhood or lenders that happen to serve them. Similar to the studies of redlining reviewed in the previous section, Avery, Beeson and Sniderman hypothesize that variations in mortgage application and denial rates will be a function of several risk variables such as the income of the applicant and changes in neighborhood house values; they test for independent racial effects by adding to their model the applicant's race and the racial composition of the census tract. Econometric techniques are used to separate individual applicant effects from neighborhood effects.

Based on their empirical work, Avery, Beeson and Sniderman reach the following conclusions:

- The individual applicant's race exerts a strong influence on mortgage application and denial rates. African American applicants, in particular, have unexplainably high denial rates.

[31] For example, census tracts at 80 percent of area median income were estimated to have 8.6 originations per 100 owners as compared with 10.8 originations for tracts over 120 percent of area median income.

[32] Shear *et al.*, p. 18.

[33] See Avery, *et al*.

- Once individual applicant and other neighborhood characteristics are controlled for, overall denial rates for purchase and refinance loans were only slightly higher in minority census tracts than non-minority census tracts.[34] For white applicants, on the other hand, denial rates were significantly higher in minority tracts.[35] That is, minorities have higher denial rates wherever they attempt to borrow but whites face higher denials when they attempt to borrow in minority neighborhoods. In addition, Avery *et al.* found that home improvement loans had significantly higher denial rates in minority neighborhoods. Given the very strong effect of the individual applicant's race on denial rates, Avery *et al.* note that since minorities tend to live in segregated communities, a policy of targeting minority neighborhoods may be warranted.

Other findings are:

- The median income of the census tract had strong effects on both application and denial rates for purchase and refinance loans, even after other variables were accounted for.

- There is little difference in overall denial rates between central cities and suburbs, once individual applicant and census tract characteristics are controlled for.

Avery, Beeson and Sniderman conclude that a tract-level definition is a more effective way to define underserved areas than using the list of OMB-designated central cities as a proxy.

e. Conclusions from HUD's Analysis and the Economics Literature about Urban Underserved Areas

The implications of studies by HUD and others for defining underserved areas can be summarized briefly. First, the existence of large geographic disparities in mortgage credit is well documented. HUD's analysis of HMDA data shows that low-income and high-minority neighborhoods receive substantially less credit than other neighborhoods and fit the definition of being underserved by the nation's credit markets.

Second, researchers are testing models that more fully account for the various risk, demand, and supply factors that determine the flow of credit to urban neighborhoods. The studies

[34] Avery *et al.* find very large unadjusted differences in denial rates between white and minority neighborhoods, and although the gap is greatly reduced by controlling for applicant characteristics (such as race and income) and other census tract characteristics (such as house price and income level), a significant difference between white and minority tracts remains (for purchase loans, the denial rate difference falls from an unadjusted level of 16.7 percent to 4.4 percent after controlling for applicant and other census tract characteristics, and for refinance loans, the denial rate difference falls from 21.3 percent to 6.4 percent). However, when between-MSA differences are removed, the gap drops to 1.5 percent and 1.6 percent for purchase and refinance loans, respectively. See Avery, *et al.*, p. 16.

[35] Avery, *et al.*, page 19, note that, other things equal, a black applicant for a home purchase loan is 3.7 percent more likely to have his/her application denied in an all-minority tract than in an all-white tract, while a white applicant from an all-minority tract would be 11.5 percent more likely to be denied.

by Holmes and Horvitz, Schill and Wachter, and Tootell are examples of this research. Their attempts to test the redlining hypothesis show the analytical insights that can be gained by more rigorous modeling of this issue. However, the fact that our urban areas are highly segregated means that the various loan, applicant, and neighborhood characteristics currently being used to explain credit flows are often highly correlated with each other which makes it difficult to reach definitive conclusions about the relative importance of any single variable such as neighborhood racial composition. Thus, their results are inclusive and, thus, the need continues for further research on the underlying determinants of geographic disparities in mortgage lending.[36]

Finally, much research strongly supports a targeted definition of underserved areas. Studies by Shear, *et al.* and Avery, Beeson, and Sniderman conclude that characteristics of both the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates -- once these characteristics are controlled for, other influences such as central city location play only a minor role in explaining disparities in mortgage lending. HUD's analysis shows that both credit and socioeconomic problems are highly concentrated in underserved areas within central cities and suburbs. The remaining, high-income portions of central cities and suburbs appear to be well served by the mortgage market.

HUD recognizes that the mortgage origination and denial rates forming the basis for the research mentioned in the preceding paragraph, as well as for HUD's definition of underserved areas, are the result of the interaction of individual risk, demand and supply factors that analysts have yet to fully disentangle and interpret. The need continues for further research addressing this problem. HUD believes, however, that the economics literature is consistent with a targeted rather than a broad approach for defining underserved areas.

C. Consideration of Factors 1 and 2 in Nonmetropolitan Areas: The Housing Needs of Underserved Rural Areas and the Housing, Economic, and Demographic Conditions in Underserved Rural Areas

Because of the absence of HMDA data for rural areas, the analysis for metropolitan underserved areas cannot be carried over to non-metropolitan areas. Based on discussions with rural lenders in 1995, the definition of underserved rural areas was established at the county level, since such lenders usually do not make distinctions on a census tract basis. But this definition parallels that used in metropolitan areas—specifically, a nonmetro county is classified as an underserved area if median income of families in the county does not exceed 95 percent of the greater of state nonmetro or national nonmetro median income, or minorities comprise 30 percent or more of the residents and the median income of families in the county does not exceed 120 percent of state nonmetro median income. For nonmetro areas the median income component of the underserved definition is broader than that used for metropolitan areas. While tract income is compared with area income for metropolitan areas, in rural counties income is compared with "enhanced income"—the greater of state nonmetro income and national nonmetro income. This

[36] Methodological and econometric challenges that researchers will have to deal with are discussed in Mitchell Rachlis and Anthony Yezer, "Serious Flaws in Statistical Tests for Discrimination in Mortgage Markets," *Journal of Housing Research*, Volume 4, 1993, pp. 315-336.

is based on HUD's analysis of 1990 census data, which indicated that comparing county nonmetro income only to state nonmetro income would lead to the exclusion of many lower-income low-minority counties from the definition, especially in Appalachia. Underserved counties account for 57 percent (8,091 of 14,419) of the census tracts and 54 percent of the population in rural areas. By comparison, the definition of metropolitan underserved areas encompassed 47 percent of metropolitan census tracts and 44 percent of metropolitan residents.

The county-wide definition of rural underserved areas could give the GSEs an incentive to purchase mortgages in the "better served" portions of underserved counties which may face few, if any, barriers to accessing mortgage credit in rural areas. This issue is discussed in more detail in the analysis of the GSEs' purchases below.

The demographic characteristics of served and underserved counties are first presented in this section. Next, a literature review of recent studies provides an overview of rural mortgage markets, GSE activity, and the growing demand for manufactured housing in rural housing markets. It also discusses characteristics of rural housing markets that lead to higher interest rates and mortgage access problems and makes some policy recommendations for addressing market inefficiencies.

1. Demographics

As discussed, majorities of rural households and rural counties fall under the definition of underserved areas. As shown in Table B.4, rural underserved counties have higher unemployment, poverty rates, minority shares of households and homeownership rates than rural served counties. The poverty rate in underserved rural counties (21.2 percent) is nearly twice that in served rural counties (12.2 percent). Joblessness is more common, with average unemployment rates of 8.3 percent in underserved counties and 5.9 percent in served counties. Minorities make up 20.8 percent of the residents in underserved counties and 7.4 percent in served counties. Homeownership is slightly higher in underserved counties (72.4 percent) than in served counties (70.8 percent).

INSERT TABLE B.4 HERE

Some differences exist between metro and nonmetro underserved areas. The definition is somewhat more inclusive in nonmetro areas--the majority of the nonmetro population lives in underserved counties, while the majority of the metropolitan population lives in served areas. The majority of units in underserved metropolitan areas are occupied by renters, while the majority of units in underserved rural counties are occupied by owners. But poverty and unemployment rates are higher in underserved areas than in served areas in both nonmetropolitan and metropolitan areas.

2. Literature Review

Research related to housing and mortgage finance issues in rural areas is reviewed in this section. It finds that lack of competition between rural lenders and lack of participation in

secondary mortgage markets may contribute to higher interest rates and lower mortgage availability in rural areas. The mortgages purchased by the GSEs on properties in underserved counties are not particularly focused on lower-income borrowers and first-time homebuyers, which suggests that additional research needs to be conducted to target areas in nonmetropolitan areas which experience difficulty accessing mortgage credit. The role of manufactured housing in providing affordable housing in rural areas is also discussed.

Mikesell Study (1998).[37] A study by Jim Mikesell provides an overview of mortgage lending in rural areas. It finds that home loans in rural areas have higher costs, which can be attributed to at least three factors that characterize rural mortgage markets. First, the fixed cost associated with rural lending may be higher as a result of the smaller loan size and remoteness of many rural areas. Second, there are fewer mortgage lenders in rural areas competing for business, which may account for higher interest rates. Third, the secondary mortgage market is not as well developed as in metropolitan areas.

Higher interest rates for rural mortgages are documented by the Federal Housing Finance Board's monthly survey of conventional home purchase mortgages. On average, relative to rates on mortgages in urban areas, rates on mortgages in rural areas in 1997 were 8 basis points (bp) higher on 30-year fixed rate mortgages (FRMs), 18 bp higher for 15-year FRMs, 38 bp higher for adjustable-rate mortgages (ARMs), and 52 bp higher for nonstandard loans.[38] The higher rates in rural areas translate into differences in monthly payments of $3 to $16 for a $100,000 mortgage.

Mikesell finds that property location and small loan size are two factors that make lending more costly in rural areas. Borrower characteristics, such as income, assets, and credit history, and lender characteristics, such as ownership, size, and location, might influence loan pricing, but the influence of these factors could not be tested due to lack of data.

Rural-based lenders are fewer and originate a smaller volume of loans than their urban counterparts. These factors contribute to less competition between rural lenders and a less efficient housing finance market, which result in higher costs for rural borrowers.

Rural lenders are less likely than urban lenders to participate in the secondary mortgage market. As a result, rural borrowers do not receive the benefits associated with the secondary market—the increased competition between lenders, the greater potential supply of mortgage financing, and the alignment of financing costs more closely with those in urban markets.

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[37] Mikesell, Jim. *Can Federal Policy Changes Improve the Performance of Rural Mortgage Markets*, Economic Research Service, U.S. Department of Agriculture, Issues in Agricultural and Rural Finance. Agriculture Information Bulletin No. 724-12, August 1998.

[38] Standard mortgage types are 30-year fixed-rate mortgages, 15-year FRMs, and 30-year adjustable rate mortgages (ARMs). These are the ones most often traded in the secondary markets. Nonstandard mortgages generally have shorter terms than the standard mortgages.

Some obstacles for rural lenders participating in the secondary market are that borrower characteristics and remote properties may not conform to the secondary market's underwriting standards. Rural households may have their borrowing capacity reduced by loan qualification standards which discount income that varies widely from year to year and income from self-employment held for less than several years. Rural properties' may have one or more of the following characteristics which preclude a mortgage from being purchased by the GSEs: excessive distance to a firehouse, unacceptable water or sewer facilities, location on a less-than-all-weather road, and dated plumbing or electrical systems.

Mikesell concludes that increased participation by rural lenders in the secondary mortgage market would bring down lending costs and offset some of the higher costs characteristic of rural lending, and that HUD's goals for the GSEs could encourage such increased participation.

MacDonald Study.[39] This study investigates variations in GSE market shares among a sample of 426 non-metropolitan counties in eight census divisions. Conventional conforming mortgage originations are estimated using residential sales data, adjusted to exclude non-conforming mortgages. Multivariate analysis is used to investigate whether the GSE market share differs significantly by location, after controlling for the economic, demographic, housing stock, and credit market differences among counties that could affect use of the secondary markets by lenders.[40]

MacDonald has four main findings regarding mortgage financing and the GSEs' purchases in rural mortgage markets. First, smaller, poorer and less rapidly growing non-metro areas have less access to mortgage credit than larger, wealthier and more rapidly growing areas. Second, the mortgages that are originated in the former areas are seldom purchased by the GSEs. Third, higher-income borrowers are more likely, and first-time homebuyers are less likely, to be served by the GSEs in underserved than in served areas. This suggests that the GSEs are not reaching out to marginal borrowers in underserved nonmetropolitan areas. Finally, the GSEs serve a smaller proportion of the low-income market in rural areas than do depository institutions. This finding is consistent with studies of the GSEs' affordable lending performance in metropolitan areas.

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[39] MacDonald, Heather. *Fannie Mae and Freddie Mac in Rural Housing Markets: Does Space Matter?* Study funded as part of the 1997 GSE Small Grants by HUD's Office of Policy Development and Research.

[40] MacDonald constructs a county-level mortgage market data in rural areas using information collected by the Department of Revenue for counties and states. Annual Sales Ratio Studies conducted by many states' Department of Revenue provide the number of sales for different property types. This is done by using residential sales recorded for property tax purposes. Other county-level variables used to compare rural counties are obtained from the 1990 Census of Population and Housing and Bureaus of labor Statistics. Data obtained from Census included county populations, racial composition, a variety of housing stock characteristics like home ownership rates, vacancy rates, proportion of owner-occupied mobile homes, median housing value in 1990, median age of the housing stock, proportion of units with complete plumbing, and access to infrastructure, e.g., public roads and sewage systems. Data collected from the Bureau of Labor Statistics included unemployment rates and residential building permits.

With regard to the GSEs' underwriting guidelines MacDonald makes two points. First, the GSEs' purchase guidelines may adversely affect non-metro areas where many borrowers are seasonally- or self-employed and where houses pose appraisal problems. Second, MacDonald speculates that mortgage originators in nonmetropolitan areas may interpret guidelines too conservatively, or may not try to qualify non-traditional borrowers for mortgages.

MacDonald also echoes the findings of Mikesell that the existence and extent of mortgage lending problems are difficult to identify in many rural areas because of the lack of comprehensive mortgage lending data. Problems that have been identified include the lack of market competition among small, conservative lending institutions typical in rural and non-metropolitan areas; consolidation and other changes in the financial services industry, which may have different consequences in rural areas than in urban areas; lack of access to government housing finance programs in more rural locations; and weak development of secondary market sources of funds in rural areas, exacerbating liquidity problems.

MacDonald discusses briefly the importance of low-cost homeownership alternatives in rural areas. One alternative is manufactured (mobile) housing. In general, manufactured housing is less costly to construct than site-built housing. Manufactured housing makes up more than 25 percent of the housing stock in rural counties in the South and Mountain states.

MacDonald concludes that the lower participation of the GSEs in underserved areas compared with served areas may result from additional risk components for some borrowers and from lack of sophistication by the lenders that serve small non-metro markets. In smaller and poorer counties, low volumes of loan sales to the GSEs may be a result of lower incomes and smaller populations. These counties may not have sufficient loan-generating activity to justify mortgage originators pursuing secondary market outlets.

The Role of Manufactured Housing.[41] The Joint Center for Housing Studies at Harvard University conducted a comprehensive study of the importance of manufactured housing as an affordable housing choice in rural communities. In all segments of the housing market, but especially in rural areas and among low-income households, manufactured housing is growing. Based on the American Housing Survey, in 1985, 61 percent of manufactured housing stock was located in rural areas compared with 70 percent in 1993. Between 1985 and 1993, manufactured housing increased over 2.2 percent annually while all other housing increased 0.7 percent per year. In 1993, 6.0 percent (or 6 million) of households lived in manufactured housing.

Since the 1970's, the face of manufactured housing has changed. Once a highly mobile form of recreational housing in this country, today manufactured housing provides basic quality, year-round housing for millions of American households. Most earlier units were placed in mobile home parks or on leased parcels of land. Today an increasing number of units are owned by households that also own the land on which the manufactured home is located.

[41] *The Future of Manufactured Housing*, Harvard University Joint Center for Housing Studies, February 1997.

Manufactured housing's appeal lies in its affordability. The low purchase price, downpayments, and monthly cash costs of manufactured housing provide households who are priced out of the conventional housing market a means of becoming homeowners. The occupants of manufactured housing on average are younger, have less income, have less education and are more often white than occupants of single-family detached homes. This type of housing is often found in areas with persistent poverty, retirement destinations, areas for recreation and vacations, and commuting counties.

The manufactured housing industry is well positioned for continued growth. The affordability of manufacturing housing is increasingly attractive to the growing ranks of low-income households. Manufactured housing is becoming more popular among first-time homebuyers and the elderly, both of which are growing segments of the housing market. The migration of people to the South, where manufactured housing is already highly accepted, and to metropolitan fringes will further increase the demand for this type of housing.[42]

D. Factor 3: Previous Performance and Effort of the GSEs in Connection with the Central Cities, Rural Areas and Other Underserved Areas Goal

As discussed in Sections B and C, HUD has structured the Geographically Targeted Goal to increase mortgage credit to areas underserved by the mortgage markets. This section looks at the GSEs' past performance to determine the impact the Geographically Targeted Goal is having on borrowers and neighborhoods with particular emphasis on underserved areas. Section D.1 reports the past performance of each GSE with regard to the Geographically Targeted Goal. Section D.2 then examines the role that the GSEs are playing in funding single-family mortgages in underserved urban neighborhoods based on HUD's analysis of GSE and HMDA data. Section D.3 concludes this section with an analysis of the GSEs' purchases in rural (nonmetropolitan) areas.

1. GSE Performance on the Geographically Targeted Goal

This section discusses each GSE's performance under the Geographically Targeted Goal over the 1993-98 period. The data presented here are "official results"—i.e., they are based on HUD's in-depth analysis of the loan-level data submitted annually to the Department, subject and the counting provisions contained in Subpart B of HUD's December 1, 1995 Regulation of Fannie Mae and Freddie Mac. As explained below, in some cases these "official results" differ to some degree from goal performance reported by the GSEs in their Annual Housing Activities Reports to the Department.

HUD's goals specified that in 1996 at least 21 percent of the number of units eligible to count toward the Geographically Targeted Goal should qualify as geographically targeted, and at

[42] Though future demand for manufactured housing is promising, the Joint Center notes some continued obstacles to growth. Challenges for the industry to overcome include a lack of standardization of installation procedures and product guarantees, exclusionary zoning laws, and certain provisions of the national building code.

least 24 percent should qualify in 1997 and 1998. Actual performance, based on HUD analysis of GSE loan-level data, was as follows:

	1996	1997	1998
Fannie Mae:			
Units Eligible to Count Toward Goal...	1,891,896	1,765,347	3,546,302
Geographically Targeted Units…….	532,434	508,746	958,233
Percent Geographically Targeted……..	28.1%	28.8%	27.0%
Freddie Mac:			
Units Eligible to Count Toward Goal...	1,325,900	1,180,517	2,658,556
Geographically Targeted Units…….	331,495	310,572	693,748
Percent Geographically Targeted……..	25.0%	26.3%	26.1%

Thus, Fannie Mae surpassed the goals by 7.1 percentage points and 4.8 percentage points in 1996 and 1997, respectively, and Freddie Mac surpassed the goals by 4.0 and 2.3 percentage points. In 1998 Fannie Mae's performance fell by 1.8 percentage points, while Freddie Mac's performance fell slightly, by 0.2 percentage point.[43]

Fannie Mae's performance on the Geographically Targeted Goal jumped sharply in just two years, from 23.6 percent in 1993 to 31.9 percent in 1995, before tailing off to 28.1 percent in 1996. As indicated, it then rose slightly to 28.8 percent in 1997, before tailing off to 27.0 percent last year. Freddie Mac has shown more steady gains in performance on the Geographically Targeted Goal, from 21.3 percent in 1993 to 24.2 percent in 1994, 25 percent in 1995-96, and just over 26 percent last year.

Fannie Mae's performance on the Geographically Targeted Goal has surpassed Freddie Mac's in every year. However, Freddie Mac's 1998 performance represented a 23 percent increase over the 1993 level, exceeding the 14 percent increase for Fannie Mae. And Freddie Mac's performance was 97 percent of Fannie Mae's geographically targeted share in 1998, the highest ratio since the interim goals took effect in 1993

2. GSEs' Mortgage Purchases in Metropolitan Neighborhoods

As shown in Table B.5, metropolitan areas accounted for about 85 percent of total GSE purchases under the Geographically Targeted Goal. This section uses HMDA and GSE data for metropolitan areas to examine the neighborhood characteristics of the GSEs' mortgage purchases. In subsection 2.a, the GSEs' performance in underserved neighborhoods is compared with that of portfolio lenders and the overall market. This section therefore expands on the discussion in Appendix A, which compared the GSEs' funding of affordable loans with the overall conventional

[43] The Fannie Mae figures for 1997 differ from corresponding figures presented by Fannie Mae in its Annual Housing Activity Report to HUD by 0.2 percentage points, reflecting minor differences in application of counting rules. The percentages shown above for Fannie Mae in 1996 and 1998 and for Freddie Mac in 1996-1998 are identical to the corresponding percentages in the GSEs' Annual Housing Activity Reports.

conforming market. In subsection 2.b., the characteristics of the GSEs' purchases within underserved areas are compared with those for their purchases in served areas.

INSERT TABLE B.5 HERE

a. Comparisons With the Primary Market

Overview and Main Conclusions. Tables A.3 and A.4a in Appendix A provided information on the GSEs' funding of home purchase loans for properties located in underserved neighborhoods for the years 1993 to 1998. The findings with respect to the GSEs' funding of underserved neighborhoods are similar to those reported in Appendix A regarding the GSEs' overall affordable lending performance. Both GSEs have improved their performance over the past six years but, on average, they continue to lag the conventional conforming market in providing affordable loans to underserved neighborhoods. As discussed in Appendix A, the two GSEs show very different patterns of lending -- Freddie Mac has been much less likely than Fannie Mae to fund home loans in underserved neighborhoods. The percentage of Freddie Mac's purchases financing properties in underserved census tracts is substantially less than the percentage of total market originations in these tracts; furthermore, since 1992 Freddie Mac has not made any progress closing the gap with the primary market. Fannie Mae, on the other hand, is much closer to market levels in its funding of underserved areas. The same issue discussed in Appendix A about the down payment characteristics of the GSEs' purchases can also be raised about their purchases in underserved areas -- the GSEs' typically purchase high down payment mortgages in these areas, which reduces their ability to help lower-income, cash-constrained borrowers seeking to purchase properties in these neighborhoods. The remainder of this section present data to support these conclusions.

Freddie Mac. During the 1993-1998 period, Freddie Mac has lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing home loans to underserved neighborhoods. Underserved census tracts (as defined by HUD) accounted for 19.7 percent of Freddie Mac's single-family home mortgages, compared with 22.9 percent of Fannie Mae's purchases, 26.3 percent of loans originated and held in portfolio by depository lenders, and 24.5 percent of the overall conforming primary market. If the analysis is restricted to the 1996-98 period during which the current housing goals have been in effect, the data continue to show that Freddie Mac has lagged the market in funding underserved neighborhoods (see Table A.3 in Appendix A). In 1998, underserved census tracts accounted for 20.0 percent of Freddie Mac's purchases and 24.6 percent of loans originated in the conforming home purchase market, yielding a "Freddie Mac-to-market" ratio of only 0.81 (i.e. 20.0 divided by 24.6).

*Fannie Mae***.** Over the longer 1993-98 period and the more recent 1996-98 period, Fannie Mae has lagged the market and portfolio lenders in funding properties in underserved areas, but to a much smaller degree than Freddie Mac. During the 1996-98 period, underserved tracts accounted for 22.9 percent of Fannie Mae's purchases, compared with 25.8 percent of loans retained in portfolio by depositories and with 24.9 percent of home loans originated in the conventional conforming market. Fannie Mae's performance is much closer to the market than

Freddie Mac's performance, as can be seen by the "Fannie Mae-to-market" ratio of 0.92 for the 1996-98 period (i.e. 22.9 divided by 24.9).

Fannie Mae's performance improved during 1997, due mainly to Fannie Mae's increased purchases during 1997 of prior-year mortgages in underserved neighborhoods. Overall, Fannie Mae's purchases of home loans in underserved areas increased from 22.3 percent in 1996 to 23.5 percent in 1997. The underserved area percentage for Fannie Mae's purchases of newly-originated mortgages was actually lower in 1997 (20.8 percent) than in 1996 (21.9 percent). This decline was offset by the fact that a particularly high percentage (30.1 percent) of Fannie Mae's 1997 purchases of prior-year mortgages was for properties in underserved areas. Thus, Fannie Mae improved its overall performance in 1997 by supplementing its purchases of newly-originated mortgages with purchases of prior-year mortgages targeted to underserved neighborhoods. As shown in Table A.4a in Appendix A, Fannie Mae continued this strategy in 1998.

The annual data in Table A.4a show the progress that Fannie Mae has made closing the gap between its performance and that of the overall market. In 1992, underserved areas accounted for 18.3 percent of Fannie Mae's purchases and 22.2 percent of market originations, for a "Fannie Mae-to-market" ratio of 0.82. By 1998, underserved areas accounted for 22.9 percent of Fannie Mae's purchases and 24.6 percent of market originations, for a higher "Fannie Mae-to-market" ratio of 0.93. Freddie Mac, on the other hand, fell further behind the market during this period. In 1992, Freddie Mac had a slightly higher underserved area percentage (18.6 percent) than Fannie Mae (18.3 percent). However, Freddie Mac's underserved area percentage had only increased to 20.0 percent by 1998 (versus 22.9 percent for Fannie Mae). Thus, the "Freddie Mac-to-market" ratio fell from 0.84 in 1992 to 0.81 in 1998.

*Down Payment Characteristics***.** Table B.6 reports the down payment and borrower income characteristics of mortgages that the GSEs purchased in underserved areas during 1997. Two points stand out. First, loans on properties in underserved areas were more likely to have a high loan-to-value ratio than loans on properties in served areas. Specifically, about 18 percent of loans in undeserved areas had a down payment less than ten percent, compared with 15 percent of all loans purchased by the GSEs. Second, loans to low-income borrowers in underserved areas were typically high down payment loans. Approximately 70 percent of the GSE-purchased loans to very low-income borrowers living in underserved areas had a down payment more than 20 percent.

INSERT TABLE B.6 and TABLE B.7 HERE

b. Characteristics of GSEs' Purchases of Mortgages on Properties in Metropolitan Underserved Areas

Several characteristics of loans purchased by the GSEs in metropolitan underserved areas are presented in Table B.7. As shown, borrowers in underserved areas are more likely than borrowers in served areas to be first-time homebuyers, females, and older than 40 or younger than 30. And, as expected, they are more likely to have below-median income and to be members of minority groups. For example, first-time homebuyers make up 21 percent of the GSEs' mortgage

purchases in underserved areas and 17 percent of their business in served areas. In underserved areas, 53 percent of borrowers have incomes below the area median, compared with 33 percent of borrowers in served areas.

Minorities' share of the GSEs' mortgage purchases in underserved areas (29.2 percent) was nearly three times their share in served areas (10.5 percent). And the pattern was even more pronounced for African Americans and Hispanics, who accounted for 20.8 percent of the GSEs' business in underserved areas, but only 5.5 percent of their purchases in served areas.

Other differences between the GSEs' purchases in underserved and served areas include the fact that prior-year mortgages comprised a higher percentage of Fannie Mae's loans in underserved areas (32.8 percent) than in served areas (25.3 percent) in 1997, which suggests that Fannie Mae may be purchasing prior-year loans in underserved areas to raise its performance on the Geographically Targeted Goal. Also, refinance mortgages comprised a higher percentage of Freddie Mac's loans in underserved areas (44.6 percent) than in served areas (38.8 percent) in 1997, possibly due to the fact that refinance mortgages, which typically have lower loan-to-value ratios than home purchase mortgages, have lower probabilities of default or severity of loss.

3. GSE Mortgage Purchases in Nonmetropolitan Areas

Nonmetropolitan mortgage purchases made up 14 percent of the GSEs' total mortgage purchases in 1997. Mortgages in underserved counties made up 38 percent of the GSEs' business in rural areas.[44]

Unlike the underserved definition for metropolitan areas which was based on census tracts, the rural underserved definition was based on counties. Rural lenders argued that they identified mortgages by the counties in which they were located rather than the census tracts; and therefore, census tracts were not an operational concept in rural areas. Market data on trends in mortgage lending for metropolitan areas is provided by the Home Mortgage Disclosure Act (HMDA); however, no comparable data source exists for rural mortgage markets. The absence of rural market data is a constraint for evaluating credit gaps in rural mortgage lending and for defining underserved areas.

The broad nature of the underserved definition for nonmetropolitan areas raises at least two concerns. The first concern is whether the broad definition overlooks differences in borrower characteristics in served and underserved counties that should be included in the definition. Table B.8 compares borrower and loan characteristics for the GSEs' mortgage purchases in served and underserved areas. The GSEs are less likely to purchase loans for first-time homebuyers and more likely to purchases mortgages for high-income borrowers in underserved than in served counties. Mortgages to first-time homebuyers account for 13.9 percent of the GSEs' mortgage purchases in served counties compared with 12.3 percent in

[44] Underserved areas make up about 56 percent of the census tracts in nonmetropolitan areas and 47 percent of the census tracts in metropolitan areas. This is one reason why underserved areas comprise a larger portion of the GSEs' single-family mortgages in nonmetropolitan areas (38 percent) than in metropolitan areas (22 percent).

underserved counties. Surprisingly, borrowers in served counties are more likely to have incomes below the median than in underserved counties (34.5 percent compared to 28.8 percent). These findings support the claim that, in rural underserved counties, the GSEs purchase mortgages for borrowers that probably encounter few obstacles to obtaining mortgage credit.

INSERT TABLE B.8 HERE

The second concern is whether defining underserved areas in terms of an entire county gives the GSEs an incentive to purchase mortgages in the "better off" tracts. Based on an analysis of the GSEs' mortgage purchases by tract median income, it is unclear if the broad nature of the county definition has an impact on the GSEs' purchasing behavior at the tract level. For example, even though the GSEs purchase a larger percentage of mortgages in high-minority and low-income tracts in underserved than in served counties, they purchase nearly the same percentage of mortgages in both underserved and served counties in high-income tracts.

In underserved areas, the GSEs are more likely to purchase mortgages in low-income and high-minority census tracts than in served counties. The GSEs are more than twice as likely to purchase mortgages in tracts with median incomes at or below 80 percent of AMI in underserved counties than in served counties (15.7 percent vs. 5.1 percent). For census tracts with percent minority above 30 percent, 3.3 percent of the GSEs' purchases in served counties are in these high-minority tracts compared to 23.9 percent in underserved counties. These results are expected since underserved counties are made up of a greater number of low-income and high-minority census tracts than are served counties.

While the GSEs purchase nearly the same percentages of mortgages in the "better off" tracts in underserved counties and served counties, when compared to the percentage of owner-occupied units in these areas, two points stand out. First, as the ratio of tract income to area median income increases, so does the volume of GSE home mortgage purchases relative to the number of owner-occupied units in the tract. Second, this tendency is more pronounced in underserved than in served counties.

Tables B.9 and B.10 provide distributions of owner-occupied units across tracts by tract income ratio, as reported in the 1990 Census, and distributions of 1997 GSE home mortgage purchases by tract income ratio. The two tables provide data for underserved and for served counties, respectively. In underserved counties, 1.1 percent of GSE 1997 purchases and 2.7 percent of owner-occupied units were in tracts with median income at or below 60 percent of area median income. The ratio of these two shares is 0.41 (1.1 divided by 2.7). As the ratio of tract income to area median income increases, the ratio between the two shares increases (see Table B.9). This same result is found for served counties, but the ratios are both larger for low tract income ratios and smaller for high tract income ratios (Compare Table B.10 with Table B.9).

INSERT TABLE B.9 and TABLE B.10 HERE

The fact that the ratio of shares for higher-income tracts is larger in underserved counties than in served counties suggests that the GSEs are purchasing a greater percentage of mortgages

in "better off" tracts as a result of the county-based geographically targeted goal. For example, in tracts where the median income is above 120 percent of the area median, the ratio of the GSEs' mortgage purchase share to the owner-occupied units share is 2.03 for underserved counties, compared to 1.48 for served counties. Conversely, in tracts where the median income is at or below 60 percent of the area median, the ratio of the GSEs' mortgage purchase share to the owner-occupied units share is 0.41, compared to 0.67 for served counties.

There are similarities and differences between the types of loans that Fannie Mae and Freddie Mac purchase in served and underserved counties. The GSEs are similar in that their mortgage purchases in underserved counties do not have lower downpayments than in served counties. In both served and underserved counties, approximately 28 percent of the GSEs' 1997 mortgage purchases have loan-to-value ratios above 80 percent. The GSEs differ in their mortgage purchases of refinanced and seasoned loans. Fannie Mae is more likely to purchase more seasoned mortgages in underserved than in served counties; Freddie Mac is more likely to purchase more refinanced mortgages in underserved than in served counties.

E. Factor 4: Size of the Conventional Conforming Mortgage Market for Underserved Areas

HUD estimates that underserved areas account for 29-32 percent of the conventional conforming mortgage market. The analysis underlying this estimate is detailed in Appendix D.

F. Factor 5: Ability to Lead the Industry

This factor is the same as the fifth factor considered under the goal for mortgage purchases on housing for low- and moderate-income families. Accordingly, see Section G of Appendix A for a discussion of this factor.

G. Factor 6: Need to Maintain the Sound Financial Condition of the Enterprises.

HUD has undertaken a separate, detailed economic analysis of this proposed rule, which includes consideration of (a) the financial returns that the GSEs earn on loans in underserved areas and (b) the financial safety and soundness implications of the housing goals. Based on this economic analysis and discussions with the Office of Federal Housing Enterprise Oversight, HUD concludes that the proposed goals raise minimal, if any, safety and soundness concerns.

H. Determination of the Geographically-Targeted Areas Housing Goals

The annual goal for each GSE's purchases of mortgages financing housing for properties located in geographically-targeted areas (central cities, rural areas, and other underserved areas) is established at 29 percent of eligible units financed in calendar year 2000 and 31 percent of eligible units financed in calendar year 2001. The year 2001 goal will remain in effect through 2003 and thereafter, unless changed by the Secretary prior to that time. The goal represents an increase over the 1996 goal of 21 percent and the 1997-99 goal of 24 percent. However, it is commensurate with the market share estimates of 29-32 percent, presented in Appendix D.

This section summarizes the Secretary's consideration of the six statutory factors that led to the choice of these goals. It discusses the Secretary's rationale for defining these geographically-targeted areas and it compares the characteristics of such areas and untargeted areas. The section draws heavily from earlier sections which have reported findings from HUD's analyses of mortgage credit needs as well as findings from other research studies investigating access to mortgage credit.

1. Credit Needs in Metropolitan Areas

HUD's analysis of HMDA data shows that mortgage credit flows in metropolitan areas are substantially lower in high-minority and low-income neighborhoods and mortgage denial rates are much higher for residents of such neighborhoods. The economics literature discusses the underlying causes of these disparities in access to mortgage credit, particularly as related to the roles of discrimination, "redlining" of specific neighborhoods, and the barriers posed by underwriting guidelines to potential minority and low-income borrowers. Studies reviewed in Section B of this Appendix found that the racial and income composition of neighborhoods influence mortgage access even after accounting for demand and risk factors that may influence borrowers' decisions to apply for loans and lenders' decisions to make those loans. Therefore, the Secretary concludes that high- minority and low-income neighborhoods in metropolitan areas are underserved by the mortgage system.

2. Identifying Underserved Portions of Metropolitan Areas

To identify areas underserved by the mortgage market, HUD focused on two traditional measures used in a number of studies based on HMDA data:[45] application denial rates and mortgage origination rates per 100 owner-occupied units.[46] Tables B.1 and B.2 in Section B of this Appendix presented detailed data on denial and origination rates by the racial composition and median income of census tracts for metropolitan areas.[47] Aggregating this data is useful in order to examine denial and origination rates for broader groupings of census tracts:

[45] HMDA provides little useful information on rural areas. Therefore, the HMDA data reported here apply only to metropolitan areas.

[46] Analysis of application rates are not reported here. Although application rates are sometimes used as a measure of mortgage demand, they provide no additional information beyond that provided by looking at both denial and origination rates. The patterns observed for application rates are still very similar to those observed for origination rates.

[47] As shown in Table B.1, no sharp breaks occur in the denial and origination rates across the minority and income deciles -- mostly, the increments are somewhat similar as one moves across the various deciles that account for the major portions of mortgage activity.

Minority Composition	Denial Rate	Orig. Rate	Tract Income	Denial Rate	Orig. Rate
0 - 30%…….	13.7%	8.7	Less than 90%……..	24.0%	6.5
30 - 50%……	21.3%	6.8	90 - 120%…….	15.6%	8.3
50 - 100%……..	25.1%	5.8	Greater than 20%….	9.5%	9.5

Two points stand out from these data. First, high-minority census tracts have higher denial rates and lower origination rates than low-minority tracts. Specifically, tracts that are over 50 percent minority have nearly twice the denial rate and two-thirds the origination rate of tracts that are under 30 percent minority.[48] Second, census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. Tracts with income less than or equal to 90 percent of area median income have 2.5 times the denial rate and barely two-thirds the origination rate for tracts with income over 120 percent of area median income.

In 1995, HUD's research determined that "underserved areas" could best be characterized in metropolitan areas as census tracts with minority population of at least 30 percent in 1990 and/or census tract median income no greater than 90 percent of area median income in 1990, excluding high-minority high-income tracts. These cutoffs produce sharp differentials in denial and origination rates between underserved areas and adequately served areas. For example, the mortgage denial rate in underserved areas (23.4 percent) was nearly twice that in adequately served areas (12.2 percent) in 1997.

These minority population and income thresholds apply in the suburbs as well as in OMB-defined central cities. HUD's research has found that the average denial rate in underserved suburban areas is almost twice that in adequately served areas in the suburbs. (See Figure B.1 in Section B of this Appendix.) Thus HUD uses the same definition of underserved areas throughout metropolitan areas--there is no need to define such areas differently in central cities and in the suburbs. And HUD's definition, which covers 57 percent of the central city population and 33 percent of the suburban population, is clearly preferable to a definition which would count 100 percent of central city residents and zero percent of suburban residents as living in underserved areas.

This definition of metropolitan underserved areas includes 21,586 of the 46,904 census tracts in metropolitan areas, covering 44 percent of the metropolitan population. It includes 73 percent of the population living in poverty in metropolitan areas. The unemployment rate in

[48] The differentials in denial rates are due, in part, to differing risk characteristics of the prospective borrowers in different areas. However, use of denial rates is supported by the findings in the Boston Fed study which found that denial rate differentials persist, even after controlling for risk of the borrower. See Section B for a review of that study.

underserved areas is more than twice that in served areas, and rental units comprise 52.4 percent of total units in underserved tracts, versus 28.6 percent of total units in served tracts. As shown in Table B.11, this definition covers most of the population in the nation's most distressed central cities: Newark (99 percent), Detroit (96 percent), Hartford (97 percent), and Cleveland (90 percent). The nation's five largest cities also contain large concentrations of their population in underserved areas: New York (62 percent), Los Angeles (69 percent), Chicago (77 percent), Houston (67 percent), and Philadelphia (80 percent).

INSERT TABLE B.11, FIGURE B.2 and FIGURE B.3 HERE

3. *Identifying Underserved Portions of Nonmetropolitan Areas*

Recognizing the difficulty of defining rural underserved areas and the need to encourage GSE activity in such areas, HUD has chosen a rather broad, county-based definition of underservedness in rural areas. Specifically, a nonmetropolitan county is underserved if in 1990 (1) county median family income was less than or equal to 95 percent of the greater of state or national nonmetropolitan income or (2) county median family income was less than or equal to 120 percent of state nonmetropolitan income and county minority population was at least 30 percent of total county population. This definition includes 1,511 of the 2,305 counties in nonmetropolitan areas and covers 54 percent of the nonmetropolitan population. The definition does target the most disadvantaged rural counties—it includes in underserved areas 67 percent of the nonmetropolitan poor and 75 percent of nonmetropolitan minorities. The average poverty rate in underserved counties in 1990 was 21 percent, significantly greater than the 12 percent poverty rate in counties designated as adequately served. The definition also includes 84 percent of the population that resides in remote counties that are not adjacent to metropolitan areas and have fewer than 2,500 residents in towns.

4. Past Performance of the GSEs

The GSEs' performance on the geographically-targeted goal has improved significantly in recent years, as shown in Figure B.2. Fannie Mae's performance, as measure by HUD, increased sharply from 23.6 percent in 1993 to 31.9 percent in 1995, dropped to 28.1 percent in 1996, and rose to 28.8 percent in 1997, and then dropped to 27.0 percent in 1998. Freddie Mac's performance, as measured by HUD, rose from 21.8 percent in 1993 to 26.4 percent in 1995, followed by 25.0 percent in 1996, 26.3 percent in 1997, and 26.1 percent in 1998.

Both GSEs have improved their performance in underserved areas over the past six years but, on average, they continue to lag the conforming primary market in providing single-family home loans to distressed neighborhoods. As discussed in Section D, the GSEs show different patterns of lending -- Freddie Mac is less likely than Fannie Mae to purchase mortgages on properties in low-income and high-minority neighborhoods. During the 1996-98 period, Freddie Mac lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing funds to underserved neighborhoods. As shown in Figure B.3, underserved areas accounted for 20.0 percent of Freddie Mac's 1998 purchases of home loans, compared with 22.9 percent of Fannie Mae's purchases, 26.1 percent of home loans retained in depositories' portfolios, and 24.6 percent

of the overall conforming market. Freddie Mac has not made any progress since 1992 in reducing the gap between its performance and that of the conventional conforming home purchase market. Fannie Mae, on the other hand, has improved its funding in underserved areas and has closed the gap between its performance and the single-family primary market in funding low-income and high-minority neighborhoods.[49]

HUD also conducted an analysis of the share of the overall (single-family and multifamily) conventional conforming mortgage market accounted for by the GSEs. The GSEs' purchases represented 39 percent of total dwelling units financed during 1997 but they represented only 33 percent of the dwelling units financed in underserved neighborhoods. In other words, the GSEs account for only one-third of the single-family and multifamily units financed in underserved areas. This suggests that there is room for the GSEs to increase their purchases in underserved neighborhoods.

5. Size of the Mortgage Market for Geographically-Targeted Areas

As detailed in Appendix D, the market for mortgages in geographically-targeted areas accounts for 29 to 32 percent of dwelling units financed by conventional conforming mortgages. In estimating the size of the market, HUD used alternative assumptions about future economic and market conditions that were less favorable than those that existed over the last five years. HUD is well aware of the volatility of mortgage markets and the possible impacts on the GSEs' ability to meet the housing goals. Should conditions change such that the goals are no longer reasonable or feasible, the Secretary has the authority to revise the goals.

6. The Geographically-Targeted Areas Housing Goal for 2000-03

There are several reasons that the Secretary is increasing the Geographically Targeted Areas Goal. *First*, the present 24 percent goal level for 1997-99 and the GSEs' recent performance are below the estimated 29-32 percent of the primary mortgage market accounted for by units in properties located in geographically-targeted areas. Raising the goal reflects the Secretary's concern that the GSEs close the remaining gap between their performance and that of the primary mortgage market.

Second, the single-family-owner mortgage market in underserved areas has demonstrated remarkable strength over the past few years relative to the preceding period. This market had only recently begun to grow in 1993 and 1994, the latest period for which data was available when the 1996-99 goals were established in December 1995. But the historically high undeserved areas share of the primary single-family mortgage market attained in 1994 has been maintained over the 1995-98 period. The three-year average of the underserved areas share of the single-family-owner mortgage market in metropolitan areas was 22.2 percent for 1992-94, but 25.1 percent for 1995-98 and 24.1 percent for the 1992-98 period as a whole.

[49] Although this goal is targeted to lower-income and high-minority areas, it does not mean that GSE purchase activity in underserved areas derives totally from lower income or minority families. In 1997, above-median income households accounted for 37 percent of the mortgages that the GSEs purchased in underserved areas. This suggests that these areas are quite diverse.

Third, as discussed in detail in Appendix A, there are several market segments that would benefit from a greater secondary market role by the GSEs; many of these market segments are concentrated in underserved areas. For example, one such area is single-family rental dwellings. These properties, containing 1-4 rental units, are an important source of housing for families in low-income and high-minority neighborhoods. However, the GSEs' purchases have accounted for only 13 percent of the single-family rental units financed in underserved areas during 1997. The Secretary believes that the GSEs can do more to play a leadership role in providing financing for such properties. Examples of other market segments in need of an enhanced GSE role include small multifamily properties, rehabilitation loans, seasoned CRA loans, and manufactured housing. Additional efforts by the GSEs in these markets would benefit families living in underserved areas.

Finally, a wide variety of quantitative and qualitative indicators indicate that the GSEs' have the financial strength to improve their affordable lending performance. For example, combined net income has risen steadily over the last decade, from $677 million in 1987 to $4.5 billion in 1997, an average annual growth rate of 21 percent per year. This financial strength provides the GSEs with the resources to lead the industry in supporting mortgage lending for properties located in geographically-targeted areas.

Summary. Figure A.4 of Appendix A summarizes many of the points made in this section regarding opportunities for Fannie Mae and Freddie Mac to improve their overall performance on the Geographically-Targeted Goal. The GSEs' purchases have provided financing for 2,893,046 dwelling units, which represented 39 percent of the 7,443,736 single-family and multifamily units that were financed in the conventional conforming market during 1997. However, in the underserved areas part of the market, the 795,981 units that were financed by GSE purchases represented only 33 percent of the 2,408,393 dwelling units that were financed in the market. Thus, there appears to ample room for the GSEs to increase their purchases in underserved areas. It is hoped that expression of concern in the current rulemaking will foster additional effort by both GSEs to increase their purchases in underserved areas.

7. Conclusions

Having considered the projected mortgage market serving geographically-targeted areas, economic, housing and demographic conditions for 2000-03, and the GSEs' recent performance in purchasing mortgages on properties in geographically-targeted areas, the Secretary has determined that the annual goal of 29 percent in calendar year 2000 and 31 percent in calendar year 2001 and the years following is feasible. Moreover, the Secretary has considered the GSEs' ability to lead the industry as well as the GSEs' financial condition. The Secretary has determined that these goal levels are necessary and appropriate.